AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of optically scanning a pneumatic tire of a vehicle wheel the method comprising the steps of:

rotating the vehicle wheel about a stationary axis;

scanning the surface of the pneumatic tire while the wheel is rotating by emitting three light beams from three given positions onto the surface of the pneumatic tire forming a light spot in each given position;

receiving three beams reflected by the surface of the pneumatic tire corresponding to each of the three light beams for measuring the distance of each of the light spots relative to a reference position;

measuring a rotary angle position of the vehicle wheel associating with the measured distances; and

determining dimensions and positions of the pneumatic tire or constituent parts of the pneumatic tire based on the measured distances of the three light spots and the associated rotary angle position of the vehicle;

wherein one of the light beams scans the tire tread surface, and the other two of the light beams scans the tire side walls at the inside and the outside of the wheel such that all surface spots of the tire are scanned.

2. Cancelled.

3. (Currently Amended) The method according to claim 1, wherein the profile depth and/or irregular tire wear are ascertained when scanning the tread surface.

4. (Original) The method according to one of claim 3, wherein the tread surface of the pneumatic tire is scanned to determine unacceptable conicity.

5. Cancelled.

6. (Previously presented) The method according to claim 1 further comprising the step of detecting the tire fit on the tire rim and/or indentations and/or bulges at one or both tire side walls of the wheel, based on the respective directions of at least one of the emitted light beams and at least one of the reflected beams.

7. (Currently Amended) An apparatus for optically scanning a pneumatic tire of a vehicle wheel that is rotatably mounted on a measuring shaft of a wheel balancing machine, comprising:

three sensor devices, each comprising a light source that emits a light beam configured to scan the surface of the pneumatic tire while the wheel is rotating to form at least one light spot on the tire surface, and a receiver movable together with the light source, wherein the receiver is configured to receive a beam reflected by the surface of the pneumatic tire while the wheel is rotating, and produce a signal based on the receiving position of the reflected beam at the receiver, and wherein each light source and corresponding receiver are movable together into given positions relative to the measuring shaft for measuring the distance of the at least one light spot relative to a reference position;

a rotary angle sensor, coupled to the measuring shaft, for generating a rotary angle associated with the at least one light spot of each sensor based on the rotation of the measuring shaft and the vehicle wheel; and

a computer-aided evaluation device, coupled to the rotary angle sensor and the receivers, for ascertaining dimensions and positions of the pneumatic tire or constituent parts of the pneumatic tire based on the measured distance of the at least one light spot of each sensor and the associated rotary angle position of the rotating vehicle wheel;

wherein one of the sensor devices is configured to scan the tire tread surface, and the other two of the sensor devices are configured to scan the tire side walls at the inside and the outside of the wheel such that all surface spots of the tire are scanned, and the sensor devices are attached to movable components of a wheel balancing machine.

8. (Cancelled)

9. (Currently Amended) A method using three light beams for optically scanning a pneumatic tire of a vehicle wheel that is rotatably mounted to a stationary axis, in which a light beam is directed from each of three given positions on to the surface of the pneumatic tire while the wheel is rotating, and an associated reflected beam is received at each of the three given positions, wherein dimensions and positions of the pneumatic tire or constituent parts of the pneumatic tire are ascertained based on the directions of the emitted light beams and the reflected beams;

wherein one of the light beams scans the tire tread surface, and the other two of the light beams scans the tire side walls at the inside and the outside of the wheel such that all surface spots of the tire are scanned.